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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,670	01/24/2002	Seong-mo Park	2013p012	3601

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

AN, SHAWN S

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 08/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/057,670

Applicant(s)

PARK ET AL.

Examiner

Shawn S An

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 and 13 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 11 is/are rejected.
- 7) ☒ Claim(s) 3-10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/4/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ran et al (5,706,059) in view of Rackett (6,567,659).

Regarding claim 1, Ran et al discloses an apparatus for performing motion estimation, comprising:

a first memory (Fig. 2, 220) and a second memory (200) for storing current and previous image data as a reference block having a predetermined size and as a search region for searching motion vectors, respectively;

a motion estimation unit (Fig. 2) for receiving the current and the previous image data from the first memory and the second memory to perform motion estimation for the current image data;

a comparator (240) for outputting the minimum value of estimation results; and

an address generator (250) for outputting addresses related to motion estimation and the motion compensation to the first memory and the second memory.

Ran et al does not particularly disclose a motion estimation skip unit for receiving MVs and SAD values, motion compensating, and determining if motion estimation for the current image data is skipped based on the compensation results of the current image data, a multiplexer for selecting and outputting the compensation result generated from the motion estimation skip unit and the final estimation result generated from the comparator based on the determination result of the motion estimation skip

unit, and a controller for controlling the operation of the motion estimation skip unit and the operation of generating the addresses in the address generator based on the determination of the motion estimation skip unit.

However, Rackett teaches a motion estimation algorithm comprising a motion estimation skip unit for receiving MVs and SAD values, motion compensating (col. 9, lines 2-10), and determining if motion estimation for the current image data is skipped based on the compensation results of the current image data (col. 7, lines 57-67; col. 8, lines 1-13).

Furthermore, it is considered an obvious feature for a controller such as in a motion estimator for controlling the motion estimation skip unit and the operation of generating addresses for a smooth operation.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing an apparatus for performing motion estimation as taught by Ran et al to incorporate the teachings as taught by Rackett, thereby, a multiplexer could select and output the compensation result generated from the motion estimation skip unit and the final estimation result generated from the comparator, and a controller could control the operation of the motion estimation skip unit and the operation of generating the addresses in the address generator based on the determination of the motion estimation skip unit as an efficient way to reduce the overall computation load of motion estimation.

Regarding claim 2, Ran et al discloses the memory comprising a first and a second memory blocks for storing data in odd rows and even rows of the previous image data (col. 8, lines 15-32).

Regarding claim 11, Ran et al discloses a plurality of processing elements for estimating a motion of the current image data (Fig. 2).

Allowable Subject Matter

3. Claims 3-10 are objected to as being dependent upon a rejected base claim 1, but would be allowable: if claim 3 is rewritten in independent form including all of the limitations of the base claim 1 and any intervening claims.

Dependent claims 3-10 recite novel features comprising a motion compensator for obtaining the median value of the motion vectors of the previous image data, performing the motion compensation, and obtaining the maximum value of the SAD values, and a skip determiner for comparing the motion estimation result with the maximum value of the SAD values to determine whether or not the motion estimation is skipped.

The art of records fail to anticipate or make obvious the novel features as specified in the claims 3-10.

Accordingly, if the amendments are made to the claims listed above, and if rejected claims are canceled, the application would be placed in condition for allowance.

4. Claims 12-13 are allowed.

5. Claims 12-13 include the novel features comprising the similar limitations of claim 3 as discussed directly above, wherein the art of records fail to anticipate or make obvious.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

A) Sun (6,014,181), Adaptive step size motion estimation based on statistical sum of absolute differences.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn An whose telephone number (703) 305-0099 and schedule are Tuesday-Friday.

8. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SSA

Primary Patent Examiner

8/4/04